

Response under 37 CFR §1.111
Attorney Docket No.: 082466
Application No.: 10/588,452

REMARKS

Claims 1-18 are pending in the present application. No new matter has been entered.

Specification Objection

The specification was objected to for introducing new matter into the abstract. Specifically, the amendment filed August 4, 2006 was objected to for changing “synthetic helical polymer” to --synthetic spiral polymer--.

Applicants note that a Second Preliminary Amendment was filed on October 13, 2006 which changes “synthetic spiral polymer” back to its original form, *i.e.*, --synthetic helical polymer--.

Withdrawal of the objection is requested.

Claim Rejections - 35 U.S.C. § 102

Claims 1-18 were rejected under 35 U.S.C. § 102(b) as being anticipated by **Yashima** (US 6,833,430). Favorable reconsideration is requested.

Applicants first note that Yashima corresponds to WO 2001/079310 which was cited in the International Search Report and the Information Disclosure Statement dated August 4, 2006.

(1) Applicants respectfully submit that Yashima does not teach or suggest:

A liquid crystalline composition comprising *1 to 99%* of a hydrophilic stiff main chain type liquid crystalline compound comprising a *water-soluble salt* of a synthetic helical polymer that does not have an asymmetric carbon as a main constituent of its main chain and a carrier for liquid crystal

as recited in claim 1 and similarly recited in claims 11, 16 and 17.

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Yashima discloses a polyacetylene derivative and a salt thereof obtained by polymerizing in water, an aryl acetylene derivative having a hydrophilic functional group such as a carboxyl group or phosphono group on a side chain, in the presence of a specific catalyst and a base such as sodium hydroxide. As a use of said polyacetylene derivative, Yashima discloses a liquid crystal and a chiral sensor. However, Yashima does not set forth any specific description of the salt thereof.

Yashima discloses:

[t]he polyacetylene derivative of the present invention is able to be manufactured in water, has a unique property that it shows a circular dichroism in a long wavelength region in water in the presence of optically active amino acid or optically active amino alcohol and is expected to be utilized as chiral sensor, agent for optical resolution, liquid crystals, nonlinear optical material and other functional materials.

(Col. 4, lines 44-50.) This description relates to polyacetylene derivative.

Yashima refers to the availability of polyacetylene derivative described therein for use as liquid crystal; however, Yashima neither describes nor suggests the specific condition that could form a liquid crystal. The present inventors discovered that the salt of polyacetylene derivative can form a liquid crystal in carrier for liquid crystal such as water solvent.

Furthermore, Yashima discloses in Example 3, applying 0.1% aqueous solution of sodium salt of polyacetylene derivative for discriminating the asymmetry. However, in the present invention as recited in the claims, liquid crystal can be formed in a dense aqueous solution having a concentration of 1-99%, and not in a diluted solution as in Yashima.

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Yashima does not indicate the crystalline composition of the present invention wherein a crystal can be formed in carrier for liquid crystal such as water solvent. Specifically, Yashima discloses using a free polyacetylene derivative and not a water-soluble salt; and Yashima does not disclose using a dense aqueous solution containing 1-99% of the salt.

Yashima corresponds to Comparative Examples 1-3 in the present specification. Comparative Example 1 of the present specification describes the liquid crystal forming ability in water of free polyacetylene derivative, and not salt. (Specification, page 28.) For this example, no liquid crystal could be formed. Comparative Example 2 describes that liquid crystal was not formed even in organic solvent. (Specification, pages 28-29.) Comparative Example 3 describes that a salt did not form a liquid crystal in organic solvent.

By contrast the inventive examples provided the unexpected result that a dense aqueous solution has an extremely high sensitivity as a chiral sensor, and that the highly sensitive chiral sensor functions by simple method of measuring the period of the helical structure.

(2) Applicants respectfully submit that Yashima does not teach or suggest “measuring stripe texture based on the hydrophilic stiff main chain type liquid crystalline compound” as recited in claim 17.

A stripe texture is a phenomenon peculiar to cholesteric liquid crystal wherein a twist has occurred to an overlap of rod-like arrangement of aggregate of polymer main chain forming the helical structure. For this reason, a stripe texture cannot be observed unless the main chain becomes a liquid crystal, and since the compound disclosed in Yashima does not form a liquid

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crystal, there is no way of arriving at the idea of observing stripe texture from the disclosure of Yashima.


For at least the foregoing reasons, claims 1-18 are patentable over the cited reference. Accordingly, withdrawal of the rejection of claims 1-18 is hereby solicited.

In view of the above remarks, Applicants submit that the claims are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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